REMARKS

The present application includes claims 7-12, 18-23, and 60-72. Claims 10, 60-69, and 71 were rejected by the Examiner under 35 U.S.C. § 112, first paragraph, purportedly failing to comply with the written description requirement. Claims 7-9, 11-12, 18-23, 70, and 72 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Barnes, U.S. Patent No. 2,395,091, in view of Rotter, U.S. Patent No. 4,306,506. The Examiner also objected to the drawings under 37 CFR 1.83(a).

Examiner permitted Applicant to fax to Examiner a draft of Applicant's proposed Amendment to the presently pending Final Rejection for Examiner's review. A telephone interview was subsequently conducted with Examiner on September 28, 2004, at which time Examiner indicated a favorable reaction to Applicant's arguments regarding the 35 U.S.C. § 112 rejection of claims 10, 60-69, and 71. Applicant re-submits those arguments in Section II of this Amendment (*see* page 25). During that interview, Examiner also requested that arrows be drawn in the figures to indicate the flow path of gases into and out of the interior chamber.

In response to the Final Rejection and interview with Examiner, claims 7-9, 11-12, 18-23, 70, and 72 have been canceled with traverse from the present application and will be filed in a continuation application. Therefore, only claims 10, 60-69, and 71 – the claims that Examiner indicated are allowable in view of Applicant's 35 U.S.C. § 112 arguments – remain pending. Further, Figures 5A and 5B have been amended to include the requested arrows indicating the flow of gases into and out of the interior chamber.

I. Objection To Drawing Under 37 C.F.R. 1.83(a)

Examiner has objected to the drawings under 37 CFR 1.83(a), alleging that the drawings fail to show every feature of the invention specified in the claims. In particular, Examiner recited that the feature:

> a plurality of process gas inlets operably connected to the reactor chamber, the plurality of process gas inlets configured to allow the flow of a process gas into the reactor chamber, at least a portion the perforated liner is configured to restrain at least a portion of the plurality of feed stock material adjacent to the perforated liner

must either be shown in the drawings or cancelled from the claims.

Applicant respectfully submits that the claimed features are illustrated in drawing Figures 5B, 5C, and 5D. Figure 5B illustrates a perspective cross sectional view of the gasification reactor chamber made in accordance with one embodiment of the present invention that includes a plurality of process gas inlets, as illustrated by reference number 112. The plurality of process gas inlets 112 are shown receiving process gas through a common gas supply manifold 125 and being delivered into the gasification reactor chamber 101.

Figures 5C and 5D illustrate at least a portion of the inner liner 79 being configured to restrain at least a portion of the plurality of feed stock material adjacent to the perforated liner. Both Figures 5C and 5D illustrate the liner 79 as being present in the interior chamber 126 wherein feed stock material is loaded into the gasification chamber 101 and, as illustrated by Figure 5B, process gas is delivered. The illustrated embodiment of the invention shown in Figure 5D is described as having a liner 79 that is constructed from a

"heavy wire mesh" and gives the example of a "stainless steel mesh liner 1-inch, 1-inch mesh fabricated with 5/8-inch stainless steel wire." (Paragraph 0098, Figure 5D). The stiffness created through the use of a "heavy wire mesh," for example one made of 5/8 inch thick stainless steel wire, does not necessarily require additional structural support elements between the liner and the sidewalls of the reactor chamber in order for the liner to be capable of restraining the feed stock material away from the sidewalls. (Paragraph 0098). Further, as shown in Figures 5C and 5D, the liner may be offset from the walls of the interior chamber 126 so as to restrain the feed stock material loaded within the interior chamber 126 away from the walls of the reactor and to prevent the plurality of gas inlets from being occluded.

The presence of these features in Figures 5C and 5D is exemplified by the following:

> Figures 5C and 5D illustrate an alternative embodiment of the gasification reactor chamber 101, in which an inner liner 79 is placed within the interior chamber 126. **The inner liner 70 is preferably positioned so as to leave a gap between the sidewalls of the interior chamber 126 and the inner liner 79.** The inner liner 79, which may be constructed from heavy wire mesh, has a plurality of perforations that permit the flow of gasification process gas to the feed stock material. In the preferred embodiment, the inner liner 79 is a one inch by one inch stainless steel mesh fabricated from 5/8 inch stainless steel wire and positioned two to four inches away from interior surface of the interior chamber 126. Process gas is then able to circulate in and around the feed stock material along the sides of the inner liner 79, thereby allowing the side surfaces of the feed stock material to become part of the primary reaction zone. **Additionally, because the inner liner 79 physically contains the feed stock material, the walls of the interior chamber 126 do not have any mechanical contact with the feed stock material.** This lack of contact allows the walls of the interior chamber 126 to be fabricated from substantially thinner material, thereby further reducing the weight and fabrication expenses of the gasification reactor chamber 101. **Although Figure 5C illustrates the inner liner 79 being used in conjunction a plurality of perforated conduits 75, the liner 79 may also be configured to**

> **eliminate the need for the perforated conduits 75, while still preventing the plurality of process gas inlets 112 from being occluded by feed stock material.**

Paragraph 0098 (emphasis added).

Therefore, Applicant respectfully disagrees with Examiner's assertion that the claimed features were not illustrated in the drawings. Accordingly, Applicant respectfully submits that this Response traverses the object to the drawings and overcomes any need for corrected drawing sheets.

In an effort to further understand and address Examiner's concerns regarding the drawings, a telephone interview with the Examiner was conducted on September 28, 2004. At that time, Examiner requested that arrows be drawn in figures to indicate the flow path of gases into and out of the interior chamber. Accordingly, proposed drawings amendments to Figures 5A and 5B are submitted to further exemplify the flow of process gas into the interior chamber and the flow of produced heavy withdrawn or vented out of the interior chamber. In particular, the enclosed drawings have been amended as follows:

- Arrows have been added to Figures 5A and 5B to illustrate the flow of process gases and heavy vapor fuel gases into and out of the interior chamber described in Paragraphs 0073 and 0089.
- Figure 5A has been amended to include reference numbers "225" and "229" for the gas siphon assembly and aspirator assembly respectively.
- Figure 3B has been edited to correct the reference number associated with the gas siphon assembly, namely replacing a "125" with a "225".

- Figure 3C has been amended include previously omitted reference number "225".

The proposed drawing amendments do not introduce new matter. Support for the amendments can be found at least in part from the following specification paragraphs..

> When needed, ambient air and/or recycled process gas is supplied to the gasification reactor chamber 101. Ambient air may be provided to the gasification reactor chamber 101 through a plurality of process gas inlets, as shown in Figures 3B, 3C, and 5A. In the preferred embodiment of the present invention, each wall of the interior chamber 126 has at least one process gas inlet 112, each process gas inlet 112 having a 6 inch diameter. Furthermore, at least two of these process gas inlets 112 are preferably operably connected to a common gas supply manifold 125. In the preferred embodiment, the manifolds 125 are comprised of 8 inch diameter tubing that circumscribes the outside diameter of the gasification reactor chamber 101, the tubing having a first end and a second end, the first end being connected to a variable speed blower that is located outside of the gasification reactor chamber 101, and the second end being completely occluded. Additionally, a damper is preferably operably positioned between the blower and the manifold, the damper being configured to control the introduction of the limited process gas necessary to maintain the gasification cycle and to prevent the inclusion of unwanted ambient air in the interior chamber 126.

Paragraph [0089].

> The aspirator assembly 229 uses impelled ambient air passing through a conduit coupling to create a negative back pressure in the gasification reactor chamber 101 and the gas siphon assembly 225. This negative pressure creates a suction force that draws heavy vapor fuel gas from the gasification reactor chamber 101 into the gas siphon assembly 225. In the preferred embodiment of the present invention, the gas siphon assembly 225 extends into and out of the gasification reactor chamber 101. In the preferred embodiment, a portion of the gas siphon assembly 225 that extends into the gasification reactor chamber 101 is perforated and mounted along the ceiling of the gasification reactor chamber 101. At least a portion of the gas siphon assembly 225 outside of the gasification reactor chamber 101 is insulated. Besides withdrawing heavy vapor fuel gas from the gasification reactor chamber 101, the aspirator assembly 229 also mixes ambient air with the collected heavy vapor fuel gas, thereby creating a mixed gas.

Paragraph [0073].

II. 35 U.S.C. § 112 First Paragraph Rejection

Claims 10, 60 through 69, and 71 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. More specifically, Examiner has stated that the rejected claims refer to at least a portion of the perforated liner being configured to restrain at least a portion of the plurality of feed stock material adjacent to the perforated liner, which purportedly was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor, at the time the application was filed, had possession of the claimed invention. Applicant respectfully disagrees with this position.

Applicant identified that the liner may be constructed from a heavy wire mesh. (Paragraph 0098). More specifically, Applicant stated that in the preferred embodiment, the mesh may be constructed from 5/8 inch thick stainless steel wire that has one inch by one inch perforations. (Id.) One of ordinary skill in the art would understand that the stiffness of a liner constructed from heavy gage mesh material, such as the illustrated 5/8 inch thick stainless steel wire, and particularly one having relatively small perforations, such as one inch by one inch openings, would be able to contain the weight of feed stock materials loaded therein. More particularly, one of ordinary skill would understand the ability of a heavy gage mesh liner having such a configuration to restrain loaded feed stock that is contained within the liner, and thus adjacent to the walls of the liner, away from the walls of the reactor, as illustrated in Figures 5C and 5D.

Paragraph 0098 also sets forth the following, which would further inform one of ordinary skill in the art that the inventor was in possession of the invention at the time the application was filed:

- the liner is positioned within the interior chamber and is positioned so as to create a gap between the sidewalls of the interior chamber and the inner liner, the gap preferably being 2 to 4 inches in length;
- the liner may be constructed from heavy wire mesh, has a plurality of perforations that permit the flow of gasification process gas to the feed stock material, and is preferably constructed from a one inch by one inch stainless steel mesh fabricated from 5/8 inch stainless steel wire;
- the inner liner physically contains the feed stock material, and therefore, in connection with the gap, the liner prevents the walls of the interior chamber from having any mechanical contact with the feed stock material;
- the lack of contact allows the walls of the interior chamber to be fabricated from substantially thinner material, thereby further reducing the weight and fabrication expenses of the gasification reactor chamber;
- the gap and perforations allow process gas to be able to circulate in and around the feed stock material along the sides of the inner liner, thereby allowing the side surfaces of the feed stock material to become part of the primary reaction zone; and

- the inner liner may be used without a plurality of perforated conduits and still prevent the plurality of process gas inlets from being occluded by feed stock material.

Paragraph 0098.

Thus, Applicant respectfully submits that the Applicant described the perforated liner in the specification in such a way as to reasonably convey to one skilled in the art that the inventor had possession of the invention at the time the application was filed.

CONCLUSION

A Notice of Allowance is requested. If Examiner has any questions or Applicant can be of any assistance, Examiner is invited and encouraged to contact Applicant at the number below.

The Commissioner is authorized to charge any necessary fees or credit any overpayment to the Deposit Account of McAndrews, Held & Malloy, Account No. 13-0017.

Respectfully submitted,

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AMENDMENTS TO THE DRAWINGS

The attached replacement sheets include changes to Figures 3B, 3C, 5A, and 5B.